

## REMARKS

The applicants appreciate the Examiner's thorough examination of the application and request re-examination and reconsideration of the application in view of the preceding amendments and following remarks.

The Examiner rejects claims 1-3, 9, 11, 13, 15-17, 19, 21-22, 34-36, 38-41, 44-45 under 35 U.S.C. 102(b) as allegedly being anticipated by Zdeblick. The Examiner also rejects claims 10, 12, 14, 18, 20, 23-33, and 42-43 under 35 U.S.C. §103(a) as allegedly being unpatentable over Zdeblick. The Examiner also rejects claims 1 and 37 under 35 U.S.C. §102(e) as allegedly being anticipated by Morse *et al.* The Examiner rejects claims 1-4 under 35 U.S.C. §102(e) as allegedly being anticipated by Barth *et al.* The Examiner rejects claims 5-8 under 35 U.S.C. §103(a) as allegedly being unpatentable over Zdeblick in view of Bergstresser *et al.*

The applicants' claimed integrated electrofluidic system recited in amended claim 1 includes: 1) a support platform including a plurality of laminated layers each comprised of a polymer material with a thin layer of adhesive, 2) an electronic control system mounted on the support platform, 3) a microfluidic system formed by processing said plurality of laminated layers to embed the microfluidic system thereon and for defining at least one electrofluidic component thereon, 4) an input and output in fluidic communication with the microfluidic system, and 5) at least one electrical conductor carried by the platform for electrically interconnecting the electronic control system and the at least one electrofluidic component.

The applicants' truly innovative electrofluidic system is achieved, not by attaching numerous individual fluidic and electronic components on the surface of a common substrate and then interconnecting the components, but instead by utilizing a commercially available, low cost, polymer material for the laminated layers, e.g., a polyimide material such as KAPTON<sup>®</sup> with a thin layer of adhesive, e.g., a phenolic resin adhesive such as R/FLEX<sup>®</sup> which is machined in process to define the claimed microfluidic system and the at least one electronic component directly on the laminated layers comprised of polymer material and a thin layer of adhesive. The laminated layers are laminated with the thin layer of adhesive which efficiently seals and bonds the layers. Additional laminated layers are added and additional microfluidic and/or electrofluidic components may be defined. The result is the claimed microfluidic system and/or the electronic components are embedded within the system. The integrated electrofluidic system also incorporates an electrical conductor which is embedded between the layers to provide an interconnection between the electronic components and the microfluidic components. *See*, e.g., the applicants' specification, page 4, line 16-page 5, line 5.

In contrast, Zdeblick, Morse *et al.*, Barth *et al.*, and Bergstresser, alone or in combination, fail to teach, suggest, or disclose the applicants' invention as now claimed. Accordingly, the Examiner's rejections are traversed.

Each of the Examiner's rejections has been addressed or traversed. Accordingly, it is respectfully submitted that the application is in condition for allowance. Early and favorable action is respectfully requested.

If for any reason this Response is found to be incomplete, or if at any time it appears that a telephone conference with counsel would help advance prosecution, please telephone the undersigned or his associates, collect in Waltham, Massachusetts, at (781) 890-5678.

Respectfully submitted,

A handwritten signature in black ink, appearing to be 'RJC', written over a horizontal line.

Roy J. Coleman  
Reg. No. 48,863